

AN INFANT SEAT

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims priority from U.S. Provisional Patent Application Serial No. 60/466,735, entitled "Entertainment Device with Slide Switch," filed May 1, 2003. The disclosure of this provisional patent application is incorporated herein by reference in its entirety.

This application is related to a design application filed under separate cover entitled "An Infant Seat," Attorney Docket No. 0621.0459D.

FIELD OF THE INVENTION

This invention relates generally to an infant seat, and in particular, to an infant seat that provides a stable, enhanced seating position for an infant and includes a sensory stimulus unit with a slide switch that, when actuated, effectuates a change in visual appearance of the stimulus unit and a corresponding change in the sensory output.

BACKGROUND

Infant seats have been generally found to be relatively effective for comfortably and securely supporting infants in a seated position. Such seats include bouncer-type seats which are generally formed from a wire frame having a base frame including a main portion adapted to receive and support a seat on a supporting surface and a pair of angular members that extend angularly upwardly and rearwardly from a front end of the main portion. Such bouncer seats also generally include leg and back frame portions that are supported by the angular frame members and a fabric cover that extends over the leg and back frame members for supporting an infant thereon. The angular members of the base frame are normally resiliently deflectable

slightly downward toward the main portion of the base frame thereof. When an infant is supported by the fabric covering the leg and back frame members of a seat of this type, the infant can be gently rocked (bounced) in the seat by the moving the back and leg frame members slightly up and down so that the angular members are slightly resiliently bent downwardly and then resiliently moved upwardly.

Existing infant bouncer-type seats have been generally effective at bouncing an infant and supporting the infant in an upright/seated position. However, such seats have not had deep pockets in which an infant can sit and thus provide a more secure and stable setting in which an infant can sit.

Free-standing infant seats are particularly useful to parents for soothing or entertaining an infant or providing an infant with an upright view of a room or surroundings, apart from being held by the parent. The need exists for an infant seat that can provide a broader, deeper, more stable seat for the infant.

Visual appearance and music have particular effects on infants and parents, for example, a cheery face or lively music can energize an infant or his/her parent, while quiet music and a less visually stimulating appearance can soothe or calm an infant, and in turn, his/her parent. The need exists for a sensory stimulus unit that includes a switch that can effectuate a change in visual appearance and a corresponding change in the sensory output to entertain a user.

SUMMARY

Generally, an infant seat can be used to soothe and/or entertain an infant in addition to securely holding the infant in an upright, seated position, thus freeing a parent or caregiver's hands/arms. An infant seat can bounce, vibrate, play music, or any combination thereof. In

conjunction with an infant seat according to the present invention, a sensory stimulus unit with a slide switch can, when actuated, effectuate a change in the visual appearance of the sensory stimulus unit and a corresponding change in the sensory output, i.e., such as an audio output.

The details of one or more embodiments of the present invention are set forth in the accompanying drawings and the description below. Other features and advantages of the present invention will be apparent from the description, drawings, and from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an infant bouncer seat (including soft goods) in accordance with the present invention.

FIG. 2 is a perspective view of the infant bouncer seat of FIG. 1 with the toy bar and blanket removed for clarity.

FIG. 3 is a rear perspective view of the infant bouncer seat of FIG. 2.

FIG. 4 is a left side view of the infant bouncer seat of FIG. 2.

FIG. 5 is a right side view of the infant bouncer seat of FIG. 2.

FIG. 6 is a top view of the infant bouncer seat of FIG. 2.

FIG. 7 is a bottom view of the infant bouncer seat of FIG. 2.

FIG. 8 is a front view of the infant bouncer seat of FIG. 2.

FIG. 9 is a rear view of the infant bouncer seat of FIG. 2.

FIG. 10 is a perspective view of a frame of the infant bouncer seat of FIG. 2 with soft goods, sensory stimulus unit, toy bar, and blanket removed for clarity.

FIG. 11 is a side perspective view of the infant bouncer seat of FIG. 10.

FIG. 12 is a rear perspective view of the infant bouncer seat of FIG. 10.

FIG. 13 is a left side view of the infant bouncer seat of FIG. 10.

FIG. 14 is a right side view of the infant bouncer seat of FIG. 10.

FIG. 15 is a top view of the infant bouncer seat of FIG. 10.

FIG. 16 is a bottom view of the infant bouncer seat of FIG. 10.

FIG. 17 is a front view of the infant bouncer seat of FIG. 10.

FIG. 18 is a rear view of the infant bouncer seat of FIG. 10.

FIG. 19 is a front view of the sensory stimulus unit of the present invention, showing a first visual appearance including an exemplary embodiment of a slide switch showing a first visual appearance.

FIG. 20 is a front view of the sensory stimulus unit of FIG. 19, showing a second visual appearance.

FIGS. 21 and 22 are side views of the ball disposed within the sensory stimulus unit housing of FIG. 19 and the slide switch with the faceplate portion of the housing removed.

FIG. 23 is a side view of the ball disposed within the sensory stimulus unit housing in relation to the faceplate portion of the housing.

FIGS. 24-26 are various views of the ball within the sensory stimulus unit housing in relation to the slide switch of FIG. 19. FIG. 24 is a close-up top view of the ball disposed within the sensory stimulus unit housing. FIG. 25 is a top perspective view of the ball and the interior of the sensory stimulus unit housing. FIG. 26 is a side perspective view of the ball and the interior of the sensory stimulus unit housing.

FIGS. 27A and 27B illustrate front views of the exemplary embodiment of the sensory stimulus unit of FIGS. 19 and 20 in use with an infant seat.

Like reference symbols in the various drawings indicate like elements.

DETAILED DESCRIPTION

Referring to FIGS. 1-9, a bouncer-type infant seat 100, in accordance with the present invention, may include a frame 110 and soft goods 190. Generally, a frame 110 may be formed of metal or any other suitable material, and may include a main portion 120, a front leg portion 130, and a rear base portion 140. Each portion of frame 110 will be described in detail below.

Along each side (right, left) of frame 110, a handle 150, 152 may be included. The handles 150, 152 can assist in providing portability of the infant seat 100, whether the infant is in or out of the seat. Also, on the frame 110, there may be a sensory stimulus/entertainment unit 160. An entertainment unit 160 in accordance with the present invention will be described in detail below.

Infant seat 100 may also include a toy bar 170 (See FIG. 1). Toy bar 170 may be covered with a coordinating soft goods material 172. Each end of toy bar 170 may be inserted into a socket (not shown) on each respective side of frame 110. At least one toy 175 may hang from toy bar 170 at an appropriate height for an infant to interact with the toy 175. For example, as illustrated, two character toys 175a, 175c hang from the toy bar 170. As shown in FIG. 1, between the two character toys 175a, 175c hangs a sun-themed toy 175b. The sun-themed toy 175b includes a sun that may be turned 180° and a pull loop. Each toy 175a-c may be removably attached (via a hook and loop type fastener or other appropriate means) to toy bar 170.

Soft goods material 190 may be provided on the frame 110 of the infant seat 100. The soft goods material 190 may be designed to fit securely and snugly on the frame 110. The soft goods material 190 may, for convenience, be removable and washable. Soft goods material 190

may have a themed pattern, for example, such as a brightly colored “happy” sun and smiling moon set on a brightly colored background (described herein as a “Fiesta-Siesta” theme). The soft goods material 190 may also include an attached blanket 192, which can be rolled up and secured with two hook and loop type fasteners 194a, 194b.

Soft goods material 190 in conjunction with the frame 110 of the infant seat 100 provides a seating portion for an infant. The soft goods material 190 can support the infant in a seated/upright position. As shown in FIGS. 1 and 3-5, the design of the soft goods material 190 in conjunction with the frame 110 of the infant seat 100 of the present invention provides a seat pocket 196 for receiving an infant. As a result, the seat pocket 196 of infant seat 100 of the present invention is deeper, wider, and fuller than the usual seat pocket of a conventional infant bouncer seat, and thus, the uprighted infant can sit more securely within the infant seat 100. This deeper seat pocket 196 also can provide additional space in order for a larger infant to fit within the infant seat 100.

Referring to FIGS. 10-18, frame 110 may include a main portion 120, a front leg portion 130, and a rear base portion 140. The main portion 120 may have a generally U-shaped configuration. As shown in FIGS. 11 and 12, the main portion 120 may include a right leg portion 122, a left leg portion 124, and a back portion 126.

Back portion 126 forms the bend of the U-shape of the main portion 120 of the frame 110. Back portion 126 may include an upper portion 126a, and right and left lower portions 126c, 126b. Right and left lower portions 126c, 126b intersect the respective right and left leg portions 122, 124. Upper portion 126a may be canted slightly rearward, relative to a plane (see plane X in FIG. 13) extending from the right and left lower portions 126c, 126b of the back portion 126. This canting can be at an angle of approximately 30°, as shown by Y in FIG. 13.

By providing this canting to the upper portion 126a of frame 110, the seat pocket 196, provided by the soft goods 190 on frame 110, can be deeper, as compared to conventional infant seats. The deeper seat pocket can provide a bigger place for an infant to be positioned. Also, an infant can be better angled to view ongoing activities and its surroundings.

Right and left leg portions 122, 124 can be arranged at an upward angle, relative to a surface on which the infant seat 100 may be rested. At a central portion 122a, 124a of each right and left leg portion 122, 124, respectively, the leg portion 122, 124 can bow outward, i.e., away from a central line C of the infant seat, to form a curve in each leg portion 122, 124 (see FIGS. 11, 17, and 18). As shown in Fig. 11, above the central portion 122a, 124a of each right and left leg portion 122, 124, the leg portions 122, 124 may intersect the back portion 126 of the main portion 120 of the frame 110. Proximate to the leg portion 122, 124 and the back portion 126 intersections, a handle 150, 152 may be disposed. Note that each portion 122, 124, 126 may be formed separately from or integrally with any other part to form the main portion 120 or any other part of frame 110.

As shown in FIGS. 11 and 12, the front leg portion 130 may include right and left side portions 132a, 132b, and a front portion 134. The front leg portion 130 may be generally U-shaped with an indented section to support the sensory stimulus/entertainment unit 160. The front leg portion 130 may extend forward, and can be slightly angled downward with respect to the back portion 120 of frame 110, in the direction of Z as shown in FIG. 13. Front leg portion 130 can be also rotatably movable with respect to back portion 120 of frame 110 (at points labeled Q in FIG. 11) so as to provide for folding of the frame 110 and attachment of the soft goods material 190. Also, a sensory stimulus/entertainment unit 160 may be disposed on the front leg portion 130, as seen in FIG. 1. By having the front leg portion 130 angling slightly

downward, the seat pocket 196, provided by the soft goods 190 on frame 110, can be deeper and more secure, as compared to conventional infant seats. The deeper seat pocket may provide more space for an infant to be positioned. Also, an infant can be better angled to view the ongoing activities within its surroundings.

Right and left side portions 132a, 132b of front portion 134 may extend from back portion 120 of frame 110 substantially in parallel, as each side portion 132a, 132b curves inward from back to front, i.e., toward the central line C of the infant seat, as shown in FIGS. 11 and 17. Right and left side portions 132a, 132b intersect the front portion 134 of front leg portion 130. Note that each portion 132a, 132b, 134 may be formed separately from with or integrally with any other part to form the front leg portion 130 or any other part of frame the 110.

As shown in FIGS. 11 and 12, rear base portion 140 may be substantially U-shaped. Rear base portion 140 may include a right base portion 142, a left base portion 144, and a back base portion 146. Right base portion 142 and left base portion 144 may extend forwardly i.e., toward the front of the infant seat, in the direction designated by F in FIG. 12, from back base portion 146. At respective front portions 142a, 144a, right and left base portions 142, 144 may intersect right and left leg portions 122, 124 of main portion 120 of frame 110, respectively. At this intersection, a distance D between the front portions 142a, 144a of each of the right and left base portions 142, 144 may be greater than a distance d between rear portions 142b, 144b of each of the right and left base portions 142, 144. At respective rear portions 142b, 144b, right and left base portions 142, 144 may intersect each end 146a, 146b of back base portion 146. Back base portion 146 may be substantially horizontal, and oriented substantially perpendicular to right and left base portions 142, 144. By having the distance D between the front portions 142a, 144a of each of the right and left base portions 142, 144 be greater than a distance d

between rear portions 142b, 144b of each of the right and left base portions 142, 144, the seat pocket 196, provided by the soft goods 190 on frame 110, can be deeper and more secure, as compared to conventional infant seats. Note that each portion of the rear base portion 140, 142, 144, 146 may be formed separately from or integrally with any other part to form the rear base portion 140 or any other part of frame 110.

As described briefly above, the infant seat 100 may include a sensory stimulus/entertainment unit 160 disposed on the front leg portion 130 of the frame 110 of the infant seat (see FIG. 1). The entertainment unit 160 may provide amusement to an infant through, for example, a variety of outputs, i.e., sensory stimuli, and changes provided thereon. The entertainment unit 160 may, for example, follow a themed pattern, such as Fiesta-Siesta to coordinate with the theme of the soft goods material 190. As shown in FIGS. 19-27B, a slide switch 520 may be mounted on an entertainment unit 160. The slide switch 520 can effectuate a change in visual appearance and a corresponding change in sensory output, i.e., sensory stimulus of the entertainment unit 160.

Referring to FIG. 19, an entertainment unit 160 may be mounted on a juvenile product (swing, bassinet, bouncer seat, car seat, high chair, etc.) and may include a control panel 500. Control panel 500 may include a housing 510 that has a slide switch 520, a mode indicator ball 530, and a slide switch opening 535. Housing 510 may also include a faceplate portion 510a and an outer casing 550 (see FIGS. 21, 22, 25, and 26). The faceplate portion 510a may have a visually appealing shape and may include a groove 511 formed integrally therein. Groove 511 may be disposed proximate to a lower edge portion 511a of the faceplate portion 510a of the housing 500. Slide switch 520 may be adapted to move transversely along groove 511. Slide

switch 520 may be formed to be grasped by a user's thumb and/or forefinger and be manipulated along groove 511.

Opening 535 may have a circular shape and may be formed integrally with faceplate portion 510a of housing 510. Opening 535 may be adapted to rotatably retain mode indicator ball 530 therein. Mode indicator ball 530 may be shaped like a sphere and may have at least one visual indicia 530a, 530b provided thereon. For example, mode indicator ball 530 may have, as shown in FIG. 19, a "happy" sun indicia 530a, and as shown in FIG. 20, a "sleepy" moon indicia 530b. The visual indicia 530a, 530b of mode indicator ball 530 may be painted, molded, or otherwise attached to or formed thereon. For example, the indicia 530a, 530b of mode indicator ball 530 may be molded integrally with mode indicator ball 530.

Control panel 500 can also include an operational control unit 545 that may include a switch 540 to select an operational state. For example, as shown in FIG. 19, the switch 540 may select one of four operational states: "power off" state 540a, "music only" state 540b, "vibration only" state 540c, and "music and vibration" state 540d. As illustrated herein, entertainment unit 160 may optionally include other components, such as an audio generating unit and a vibration generating unit, as appropriate or desired.

In use, generally, when a user places slide switch 520 into position 520a, a first visual indicia is displayed by mode indicator ball 530 and sensory output, i.e., sensory stimulus, such as music corresponding to the first visual indicia 530a, is generated. When a user moves slide switch 520 into position 520b, mode indicator ball 530 is rotated to display a second, different, visual indicia 530b and a second, different, sensory output, i.e., sensory stimulus, corresponding to the second visual indicia 530b, is generated.

More particularly, when, as shown in FIG. 19, a user moves slide switch 520 along groove 511 towards a first side 512a of housing 510 to position 520a, mode indicator ball 530 is rotated to display a first visual indicia 530a, i.e., “happy” sun, and, when mode indicator ball 530 displays the first visual indicia, an output, i.e., sensory stimulus, generator (not shown), i.e., an audio generating unit, provides corresponding output, for example, lively, upbeat music to entertain the user as well as the infant received in the juvenile product. When a user moves slide switch 520 towards a second side 512b of housing 510 to position 520b, mode indicator ball 530 is rotated to display a second, different, visual indicia 530b, i.e., “sleepy” moon, as shown in FIG. 20, and, when mode indicator ball 530 displays the second visual indicia, the output generator, i.e., the audio generating unit, provides corresponding output, for example, quiet, sleepy music to soothe the user and the infant received in the juvenile product.

FIGS. 21-26 depict the detailed interaction between mode indicator ball 530 and slide switch 520 within the control panel housing 510 when slide switch 520 is actuated. Slide switch 520 may be moved transversely along groove 511 of housing 510. Housing 510 may also include a grooved component 521 (shown in more detail in FIGS. 24 and 25), which extends rearwardly towards the back of housing 510 of control panel 500. Grooved component 521 may include a groove 521a formed therein. Mode indicator ball 530 may include an extension or raised boss 531 that is adapted to move within groove 521a of component 521. Extension 531 may include a biasing member 532 that helps ensure that the mode indicator ball 530 rotates a full 180° and that the slide switch 520 moves completely to the left or right upon actuation. The biasing member 532 may comprise a steel spring or a torsion spring, or any other appropriate biasing member. One end 531a of the biasing member may be provided in a groove on extension 531. A second end 531b of the biasing member may be provided on a knob 533 (see FIG. 23)

located on a lower side of the face plate. Biasing member 532 extends between extension 531 and knob 533. Note that the slide switch 520 may still move along groove 511 and rotate mode indicator ball 530, even if there is biasing member.

When slide switch 520 is actuated, i.e., moved transversely along groove 511 of housing 510, grooved component 521 is translated causing extension 531 to move within groove 521a, and mode indicator ball 530 is thus rotated about a fixed vertical axis to change its visual appearance. More particularly, when switch 520 is moved in direction of arrow R in FIG. 22, grooved component 521 also moves in direction R, extension 531 is moved within groove 521a of grooved component 521, and mode indicator ball 530 is thus rotated in the direction of arrow X to display the second visual indicia 530b.

Alternatively, when slide switch 520 is moved in the direction of arrow L in FIG. 22, grooved component 521 also moves in direction L, extension 531 is moved within groove 521a of grooved component 521, and mode indicator ball 530 is thus rotated in the direction of arrow Y to display the first visual indicia 530a. When slide switch 520 reaches position 520a or 520b and the respective visual indicia is displayed. Also, when slide switch 520 reaches position 520a or 520b electrical contact is made proximate knobs 533, 534 and the electronic portion of the entertainment unit 160 causes the output corresponding to the displayed visual indicia to be generated. Thus, movement of slide switch 520 to positions 520a or 520b not only rotates the mode indicator ball 530, but also electrically communicates with the controller (not shown) to causes the output corresponding to the displayed visual indicia to be generated.

Referring to FIGS. 27A and 27B, for example, the entertainment unit 160 with the slide switch 520 described above may be used with a juvenile product, such as a bouncer seat 1000. The control panel 500 including slide switch 520 may be connected to the frame of the bouncer

seat 1000, for example, on the portion of the bouncer seat frame providing leg support to the infant received therein. In this example, the bouncer seat 1000 has a Hispanic themed design and includes a conventional audio output generating unit (not specifically illustrated) and a conventional vibration generating unit (not specifically illustrated). The audio output generated can be lively, “fiesta” type music or quiet, “siesta” type music. The control panel 500 also includes an operational control unit 545 that includes a switch 540 to select an operational state. The switch 540 selects one of four operational states: “off” 540a, “music only” 540b, “vibration only” 540c, and “music and vibration” 540d.

As illustrated in FIGS. 19 and 20, for only music to play, the operational control switch 540 is set to “music only” position 540b. When, as shown in FIG. 27A, slide switch 520 is moved to the “fiesta” side 512a of housing 510 in position 520a, mode indicator ball 530 displays a “happy” sun face, first indicia 530a, and the audio generating unit provides lively music to entertain the user and the infant received in the bouncer seat 1000. Slide switch 520 may be moved to the “siesta” side 512b of housing 510 to position 520b. Mode indicator ball 530 rotates to display a “sleepy” moon, second visual indicia 530b, as shown in FIG. 27B, and the audio generating unit provides quiet, sleepy music to soothe the user and the infant received in the bouncer seat 1000. Other themed designs and corresponding output may be used without departing from the scope and spirit of the invention.

While the invention has been described in detail and with reference to specific embodiments thereof, it will be apparent to one skilled in the art that various changes and modifications can be made therein without departing from the spirit and scope thereof. For example, the slide switch may be used with a variety of products, including, but not limited to juvenile products (as described above) or a toy product. Also, for example, the corresponding

output may include sensory stimulus in addition to or in the alternative to audio output. Other outputs may include visual or tactile or motion output, such as lights or texture change or vibration. Accordingly, it is intended that the present invention covers the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.